

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

## BUDGET ACTIVITY

**7 - Operational system development**

## PE NUMBER AND TITLE

**0203801A - Missile/Air Defense Product Improvement Program**

| COST (In Thousands)             | FY 2003<br>Actual | FY 2004<br>Estimate | FY 2005<br>Estimate | FY 2006<br>Estimate | FY 2007<br>Estimate | FY 2008<br>Estimate | FY 2009<br>Estimate | Cost to<br>Complete | Total Cost |
|---------------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------|
| Total Program Element (PE) Cost | 39262             | 46055               | 31690               | 16576               | 10785               | 11054               | 11291               | Continuing          | Continuing |
| 036 PATRIOT PROD IMP PGM        | 39262             | 46055               | 31690               | 16576               | 10785               | 11054               | 11291               | Continuing          | Continuing |

**A. Mission Description and Budget Item Justification:** PATRIOT is an advanced Surface-to-Air guided missile system with a high single shot kill probability capable of operation in the presence of Electronic Countermeasures (ECM) and able to conduct multiple simultaneous engagements against high performance air breathing targets and ballistic missiles likely to be encountered by US Forces. The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes culminating in the attainment of the Patriot Advanced Capability-3 (PAC-3) System. Program objective will be to define and implement software changes necessary to enhance system capabilities against advanced Air Breathing Threat (ABT), Tactical Ballistic Missile (TBM) and Cruise Missile threats. Recapitalization development efforts address Mode V/S Identify Friend or Foe (IFF), launcher and design improvements. Single Integrated Air Picture (SIAP) continues efforts associated with Block 0 improvements initiated in FY03. This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

| <b>B. Program Change Summary</b>      | FY 2003 | FY 2004 | FY 2005 |
|---------------------------------------|---------|---------|---------|
| Previous President's Budget (FY 2004) | 41787   | 44468   | 32025   |
| Current Budget (FY 2005 PB)           | 39262   | 46055   | 31690   |
| Total Adjustments                     | -2525   | 1587    | -335    |
| Congressional program reductions      |         | -438    |         |
| Congressional rescissions             |         |         |         |
| Congressional increases               |         | 2100    |         |
| Reprogrammings                        | -2525   | -75     |         |
| SBIR/STTR Transfer                    |         |         |         |
| Adjustments to Budget Years           |         |         | -335    |

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FY04 funds were increased by \$1.0 million by Congress for Patriot Light Weight Antenna Mast Group (LAMG), \$1.1 million for Advanced Composite RADOME and reduced by \$.438 million for undistributed Congressional reductions and \$.075 million was realigned to higher Army priorities.

FY05 funds (\$.335 million) were realigned to higher Army priorities.

\* On January 23, 2004, The OUSD(C) submitted to the Congressional Committees a prior approval reprogramming request to fund Patriot Modifications needed to address Operation Iraqi Freedom Lessons Learned. The reprogramming includes \$17.7 million for development efforts and \$24.0 million for procurement. The \$24.0 million is not reflected in the column above.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

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BUDGET ACTIVITY

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0203801A - Missile/Air Defense Product  
Improvement Program

PROJECT

036

| COST (In Thousands)      | FY 2003<br>Actual | FY 2004<br>Estimate | FY 2005<br>Estimate | FY 2006<br>Estimate | FY 2007<br>Estimate | FY 2008<br>Estimate | FY 2009<br>Estimate | Cost to<br>Complete | Total Cost |
|--------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------|
| 036 PATRIOT PROD IMP PGM | 39262             | 46055               | 31690               | 16576               | 10785               | 11054               | 11291               | Continuing          | Continuing |

**A. Mission Description and Budget Item Justification:** The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes culminating in the attainment of the Patriot Advanced Capability-3 (PAC-3) System. Program objective will be to define and implement software changes necessary to enhance system capabilities against advanced Air Breathing Threat (ABT), Tactical Ballistic Missile (TBM) and Cruise Missile threats. Recapitalization development efforts address Mode V/S Identify Friend or Foe (IFF), launcher and design improvements. Single Integrated Air Picture (SIAP) continues efforts associated with Block 0 improvements initiated in FY03. This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

| <u>Accomplishments/Planned Program</u>   | FY 2003 | FY 2004 | FY 2005 |
|--|---------|---------|---------|
| Continue Post PDB 5  | 4485    | 6652    | 7604    |
| Recapitalization   | 26527   | 30019   | 19234   |
| Special Program (PIP)  | 4250    | 0       | 0       |
| SIAP   | 4000    | 6000    | 4852    |
| Advanced Composite RADOME  | 0       | 1100    | 0       |
| LAMG   | 0       | 1000    | 0       |
| Small Business Innovative Research/Small Business Technology Transfer Programs | 0       | 1284    | 0       |
| Totals   | 39262   | 46055   | 31690   |

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## B. Other Program Funding Summary

|  | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Compl | Total Cost |
|--|---------|---------|---------|---------|---------|---------|---------|----------|------------|
| Budget Activity 3 - Patriot Mod (C50700)                 | 148617  | 201072  | 87948   | 77411   | 79619   | 74169   | 66299   | 0        | 759954     |
| Budget Activity 3 - Patriot Mod Initial Spares<br>CA0267 | 39946   | 31817   | 14730   | 14813   | 9569    | 9043    | 8151    | 0        | 128791     |

**C. Acquisition Strategy:** The design objective of the Patriot system was to provide a baseline system capable of modification to cope with the evolving threat. This alternative minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The Patriot program consists of two interrelated acquisition programs - the Patriot growth program and the PAC-3 missile program. Growth program modifications are grouped into configurations, which are scheduled to be fielded in the same timeframe. Configuration groupings are convenient for managing block changes of hardware and software and are not a performance-related grouping. However, incremental increases in performance will be determined for each configuration in order to provide benchmarks for configuration testing and for the development of user doctrine and tactics.

| ARMY RDT&E COST ANALYSIS(R3)                                 |                        |                                |                |              |  |              |                    |              | February 2004      |                       |            |                          |
|--|------------------------|--------------------------------|----------------|--------------|--|--------------|--------------------|--------------|--------------------|-----------------------|------------|--------------------------|
| BUDGET ACTIVITY<br><b>7 - Operational system development</b> |                        |                                |                |              | PE NUMBER AND TITLE<br><b>0203801A - Missile/Air Defense Product Improvement Program</b> |              |                    |              |                    | PROJECT<br><b>036</b> |            |                          |
| I. Product Development                                       | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2003 Cost | FY 2003 Award Date   | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost To Complete      | Total Cost | Target Value of Contract |
| a . RLCEU Link 16 Phase I                                    |                        |                                | 1226           | 0            |  | 0            |                    | 0            |                    | 0                     | 1226       | 0                        |
| b . Post PDB 5   | PO                     | MRDEC, AL                      | 2760           | 1402         |  | 3786         |                    | 2618         |                    | Continue              | 10566      | Continue                 |
| c . Recapitalization   | SS-FP                  | Raytheon, MA                   | 5273           | 26527        | 2Q   | 30019        | 2Q                 | 19234        | 2Q                 | Continue              | 81053      | 0                        |
| d . Special Program (PIP)                                    |                        |                                | 0              | 4250         | 2Q   | 0            |                    | 0            |                    | 0                     | 4250       | 0                        |
| e . SIAP   | MIPR                   |                                | 0              | 4000         | 3Q   | 6000         | 3Q                 | 4852         | 3Q                 | Continue              | 14852      | 0                        |
| f . Advanced Composite RADOME                                | SS-CPIF                | LMMFC - D, TX                  | 0              | 0            | 3Q   | 1100         |                    | 0            |                    | 0                     | 1100       | 0                        |
| g . LAMG   | SS-FP                  | Raytheon, MA                   | 0              | 0            | 3Q   | 1000         |                    | 0            |                    | 0                     | 1000       | 0                        |
|  |                        |                                |                |              |  |              |                    |              |                    |                       |            |                          |
| Subtotal:  |                        |                                | 9259           | 36179        |  | 41905        |                    | 26704        |                    | Continue              | 114047     | Continue                 |
|  |                        |                                |                |              |  |              |                    |              |                    |                       |            |                          |

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY

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PE NUMBER AND TITLE

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Improvement Program**

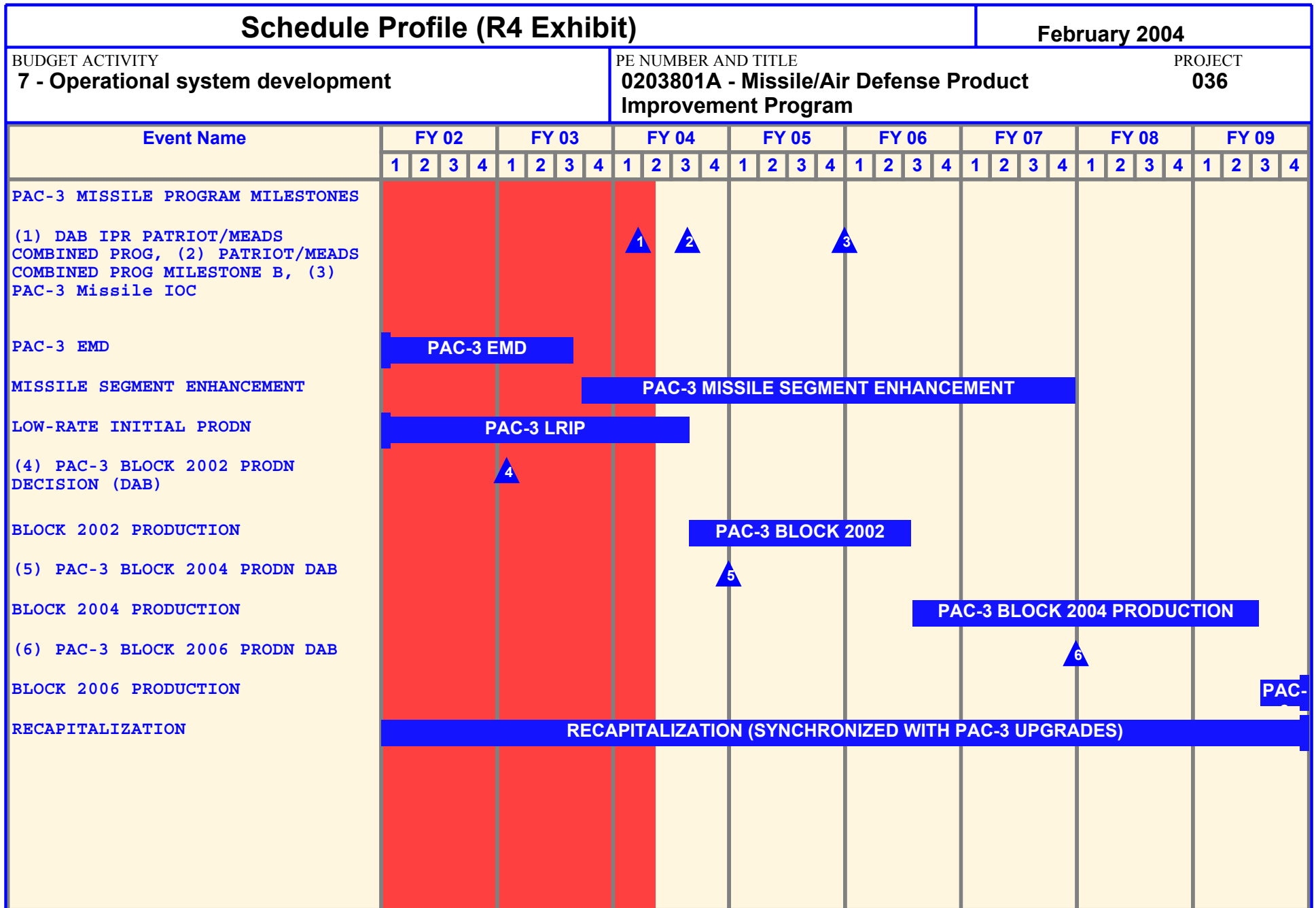
PROJECT

**036**

| II. Support Cost     | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2003 Cost | FY 2003 Award Date | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . In-House Support |                        | RSA/AL                         | 14961          | 450          |                    | 500          |                    | 810          |                    | Continue         | 16721      | Continue                 |
| b . Matrix Support   |                        | RSA/AL                         | 3347           | 320          |                    | 550          |                    | 520          |                    | Continue         | 4737       | Continue                 |
|                      |                        |                                |                |              |                    |              |                    |              |                    |                  |            |                          |
| Subtotal:            |                        |                                | 18308          | 770          |                    | 1050         |                    | 1330         |                    | Continue         | 21458      | Continue                 |

| III. Test and Evaluation      | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2003 Cost | FY 2003 Award Date | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|-------------------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . Missile Command           | 1095                   | RSA/AL                         | 15221          | 800          |                    | 1300         |                    | 1000         |                    | Continue         | 18321      | Continue                 |
| b . White Sands Missile Range | MIPR                   | WSMR/NM                        | 12758          | 234          |                    | 375          |                    | 400          |                    | Continue         | 13767      | Continue                 |
| c . RDEC and Other Govt Agent | 1095/MIPR              | RSA/AL                         | 95732          | 1279         |                    | 1425         |                    | 2256         |                    | Continue         | 100692     | 0                        |
|                               |                        |                                |                |              |                    |              |                    |              |                    |                  |            |                          |
| Subtotal:                     |                        |                                | 123711         | 2313         |                    | 3100         |                    | 3656         |                    | Continue         | 132780     | Continue                 |

|  |                        |                                |                |              |  |              |                    |              |                      |                       |            |                          |
|--|------------------------|--------------------------------|----------------|--------------|--|--------------|--------------------|--------------|----------------------|-----------------------|------------|--------------------------|
| <b>ARMY RDT&amp;E COST ANALYSIS(R3)</b>                      |                        |                                |                |              |  |              |                    |              | <b>February 2004</b> |                       |            |                          |
| BUDGET ACTIVITY<br><b>7 - Operational system development</b> |                        |                                |                |              | PE NUMBER AND TITLE<br><b>0203801A - Missile/Air Defense Product Improvement Program</b> |              |                    |              |                      | PROJECT<br><b>036</b> |            |                          |
| IV. Management Services                                      | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2003 Cost | FY 2003 Award Date   | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date   | Cost To Complete      | Total Cost | Target Value of Contract |
|  |                        |                                | 0              | 0            |  | 0            |                    | 0            |                      | 0                     | 0          | 0                        |
| Subtotal:  |                        |                                |                |              |  |              |                    |              |                      |                       |            |                          |
|  |                        |                                |                |              |  |              |                    |              |                      |                       |            |                          |
| Project Total Cost:  |                        |                                | 151278         | 39262        |  | 46055        |                    | 31690        |                      | Continue              | 268285     | Continue                 |
|  |                        |                                |                |              |  |              |                    |              |                      |                       |            |                          |





| Schedule Detail (R4a Exhibit)                                |         |         |  |         |         | February 2004         |         |
|--|---------|---------|--|---------|---------|-----------------------|---------|
| BUDGET ACTIVITY<br><b>7 - Operational system development</b> |         |         | PE NUMBER AND TITLE<br><b>0203801A - Missile/Air Defense Product Improvement Program</b> |         |         | PROJECT<br><b>036</b> |         |
| <u><b>Schedule Detail</b></u>                                | FY 2003 | FY 2004 | FY 2005  | FY 2006 | FY 2007 | FY 2008               | FY 2009 |
| PAC-3 Missile Block 02 Production DAB                        | 1Q      |         |  |         |         |                       |         |
| PAC-3 Missile Block 04 Production DAB                        |         | 4Q      |  |         |         |                       |         |
| PAC-3 IOC  |         |         | 4Q   |         |         |                       |         |
| PAC-3 Missile Block 06 Production DAB                        |         |         |  |         | 4Q      |                       |         |
| DAB IPR PAC-3/MEADS Combined Program                         |         | 3Q      |  |         |         |                       |         |